

Participation motivation and competition anxiety among Korean and non-Korean wheelchair tennis players

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The purpose of this study was to examine differences in participation motivation and competition anxiety between Korean and non-Korean wheelchair tennis players and to identify relations between participation motivation and competition anxiety in each group. Sixty-six wheelchair tennis players who participated in the 2013 Korea Open Wheelchair Tennis Tournament in Seoul completed the Participation Motivation Survey and the Competitive State Anxiety Inventory II. Data were analyzed by a frequency analysis, descriptive statistics, Pearson's correlation analysis, and independent samples t-test to identify participants' demographic characteristics, differences in participation motivation, competition anxiety between Korean and non-Korean players, and correlations between participation motivation and competition anxiety in each group. Korean players reported significantly higher motivation in purification compared to non-Korean players, whereas non-Korean

players reported significantly higher motivation in enjoyment. In addition, non-Korean players demonstrated higher cognitive anxiety and self-confidence compared to Korean players. Moreover, the physical anxiety of Korean players was negatively correlated with learning, health-fitness, and enjoyment motivation. On the other hand, only self-confidence was significantly related to learning motivation and enjoyment motivation in non-Korean players. Thus, the results presented herein provide evidence for the development of specialized counseling programs that consider the psychological characteristics of Korean wheelchair tennis players.

Keywords: Cross-cultural comparison, Disabled athletes, Physical disabilities

INTRODUCTION

Researchers in sport psychology have examined individuals' participation motivation for sports in order to identify reasons for their participation, as well as motivation's influence on sport performance. Results from these studies have indicated that motivation affects an individuals' choice of sports, sport participation, and the continuation of sport participation (Weinberg and Gould, 2007). In addition, highly motivated athletes tend to be more goal-oriented, put forth more effort towards their goals, and persevere when they encounter obstacles and difficulties than those who are not highly motivated (Duba and Balaguer, 2007; Duba and Treasure, 2011). In the early stages of studying motivation in

sport, an individuals' sport participation motivation is related to the purpose of improving health and fitness (Wankel, 1985), but later on, it appears that an individuals' reasons for participating in sports is more diverse, including health and fitness improvement. This may be the result of the promotion of various psychological components that are related to individuals' well-being and welfare (Brodskin and Weiss, 1990; Yang, 2000), including enjoyment of sport participation, learning sport skills, purification or challenge through sport activities, and building friendship and social networks (Yang, 2000). Thus, participation motivation for sports could be related to both amateur and elite athletes', as well as the general population's, sport participation and quality of life.

Anxiety is one of the most popular topics in the sport psycholo-

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gy area because competition is unavoidable for elite athletes, and competition anxiety is known as one of the most influential factors in athletes' high performance (Weinberg, 2010). Therefore, researchers have examined the causes of anxiety in order to develop skills to help athletes reduce high competition anxiety. Studies conducted with athletes without disabilities have indicated that athletes tend to have lower competition anxiety and higher self-confidence compared to those who are less successful in their sports (Craft et al., 2003). In addition, athletes are also good at using imagery, breathing techniques, and positive self-talk skills to control their anxiety and arousal (Weinberg and Gould, 2007).

Importantly, motivation and competition anxiety seem to be more important psychological components for athletes with disabilities because both athletes with and without disabilities have to put forth effort to become top athletes by overcoming a variety of mental and physical barriers. However, most of the literature has focused on participation motivation and competition anxiety among general populations, including athletes without disabilities. Indeed, only a few studies have been conducted with athletes with disabilities. According to an analysis by Kamphoff et al. (2010) who analyzed previously published studies at the Association for Applied Sport Psychology (AASP) conference for 21 yr, they reported that there is a paucity of studies on athletes with disabilities in the sport psychology literature, which makes it difficult to compare results to the general population. On the other hand, other researchers have noted that the number of studies focusing on athletes with disabilities has increased (Flechther, 2012). Moreover, these studies have focused on athletes with disabilities' motivation for sport participation, psychological components, and adjustment to their sports career (Kang and Rho, 2008; Kim, 2009).

Similar to many other areas of sport psychology, little attention has been paid to cross-cultural examinations of athletes with disabilities. Si and Lee (2007) have emphasized the need for cross-cultural studies since it is important to understand the similarities and differences of athletes' cultural context and sporting environment in order to provide individualized services to athletes of various cultures and backgrounds.

While the number of wheelchair tennis tournaments is smaller than professional tennis tours for athletes without disabilities, wheelchair tennis tournaments are held nationally and internationally. Moreover, it is a well-known professional sport in the disabled community. Therefore, elite-level wheelchair tennis players have ample opportunity to travel worldwide for competitions. For this reason, wheelchair tennis may be an appropriate sport to identify cultural and social influences on athletes' participation motivation

and competition anxiety. Thus, the results from this investigation could provide information about the differences that exist for athletes culturally and socially. In addition, it is likely that important information could be gathered for practitioners who work with athletes from different cultures.

In sum, the purpose of this study was to examine similarities and differences in participation motivation and competition anxiety between Korean and non-Korean wheelchair tennis players, and identify the relationships between participation motivation and competition anxiety in each group.

MATERIALS AND METHODS

Participants and research design

A cross-sectional examination was conducted to assess differences in participation motivation and competition anxiety between Korean and non-Korean wheelchair tennis players. We collected data from wheelchair tennis players who participated in the 2013 Korea Open Wheelchair Tennis Tournament held in Seoul, South Korea. We distributed the Participation Motivation Survey and the Competitive State Anxiety Inventory II to all the players who participated in the tournament. The surveys were distributed on the first day of the tournament in a packet that contained information about the event. Ninety copies were distributed, 70 copies were collected, and 66 copies were used in the final data analysis. We excluded four copies for missing data (Table 1).

Instruments

Participation motivation survey

The original version of the Participation Motivation Survey was used to examine participation motivation in wind-surfing activities. The measure was adapted for wheelchair tennis. The 22-item survey contained five subscales: learning motivation, purification motivation, friendship motivation, health-fitness motivation, and enjoyment motivation. Yang (2000) reported overall high internal consistency coefficients for this measure in terms of learning motivation ($\alpha = 0.86$), purification motivation ($\alpha = 0.80$), friendship motivation ($\alpha = 0.82$), health-fitness motivation ($\alpha = 0.81$), and enjoyment motivation ($\alpha = 0.80$), and provided evidence of validity by using a confirmatory factor analysis.

Competitive state anxiety inventory II (CSAI-2)

The Competitive State Anxiety Inventory II (CSAI-2) was designed to examine cognitive anxiety, physical anxiety, and confidence that players feel during competitions. This 27-item ques-

Table 1. Sociodemographic information of participants

Variable	Korean (n = 44)	Non-Korean (n = 22)
Gender (%)		
Male	90.9	81.8
Female	9.1	18.2
Age (yr)	43.2	33.5
Career (yr)	8.0	8.1
Education		
Lower than a high school degree	66.0	36.4
Higher than a bachelor degree	34.0	50.0
Period when diagnosed		
Earlier than high school	9.3	64.7
Later than high school	90.7	35.3
Monthly income		
Less than \$3,000 per month	69.7	53.3
More than \$3,000 per month	30.9	46.7
Affiliation		
Affiliated with a team	67.4	64.6
Not affiliated with a team	32.6	35.4
Marital status		
Single	36.4	63.6
Married	63.6	36.4

tionnaire is divided into three sub-categories: cognitive anxiety (nine questions), physical anxiety (nine questions), and confidence (nine questions), with higher scores indicating higher anxiety or confidence. Participants rate items on a 4-point Likert scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). Previous studies with this measure report high reliability coefficients for all sub-categories ($r = 0.76$ to 0.84) and evidence of validity via comparison with the Sports Competitive Anxiety Test (SCAT), an overall anxiety state survey, and an emotion status checklist.

Korean version of Participation Motivation Survey and CSAI-2 were provided to Korean athletes, and for the international players, we developed an English version and Japanese version of both surveys. Specifically, two native English speakers and two native Japanese speakers who were fluent in Korean verified the accuracy of the translation. Either the English version or the Japanese version of the survey was distributed to the international players, depending on their preference. We asked all participants to fill out the Competitive State Anxiety Inventory II right before their match began in order to assess state anxiety during competitive sport events. The detailed information of participants is shown in Table 1.

Data analysis

A frequency analysis and descriptive statistics were used to examine the socio-demographic information of participants, and an independent samples t-test was used to examine differences in

Table 2. Comparison of participation motivation between Korean and non-Korean wheelchair tennis players

Variable	M	SD	P	Cohen's <i>d</i>
Learning				
Korean	27.86	4.42	0.390	0.2
Non-Korean	28.95	5.56		
Purification				
Korean	15.32	2.82	0.032 ^{a)}	0.5 ^{b)}
Non-Korean	13.09	5.49		
Friendship				
Korean	11.50	2.28	0.675	0.1
Non-Korean	11.77	2.84		
Health-Fitness				
Korean	16.77	2.18	0.289	0.3
Non-Korean	17.45	2.91		
Enjoyment				
Korean	17.25	2.50	0.008 ^{a)}	0.6 ^{b)}
Non-Korean	18.64	1.59		

M, mean; SD, standard deviation. ^{a)}Indicates a significant difference between two groups, $P < 0.05$. ^{b)}Indicates moderate or large effect size (Cohen's $d \geq 0.5$).

participation motivation and competition anxiety between Korean and non-Korean players. In addition, Pearson correlation was used to examine the relation between participation motivation and competition anxiety within each group.

Effect sizes (ES) were reported in the results for the independent samples t-tests due to evidence that the results can be influenced by sample size, and that researchers tend to obtain significant results with large samples. However, ES are known for being less influenced by sample size and allow for the report of the interpretation of the strength of the result (Ellis, 2010). Therefore, reporting ES has become recommended in social and medical research (APA, 2010). Herein, ES were calculated using Cohen's d within Microsoft Excel 2007 and were interpreted as small (0.2 to 0.49), moderate (0.5 to 0.79), and large (≥ 0.8). All statistical analyses were performed using SPSS version 20.0 with the significance level set at 0.05.

RESULTS

The results comparing participation motivation between Korean and non-Korean wheelchair tennis players are shown in Table 2. There were significant differences in purification motivation ($P = 0.032$; Cohen's $d = 0.5$) and enjoyment motivation ($P = 0.008$; Cohen's $d = 0.6$) between the two groups. Korean wheelchair tennis players reported higher motivation for purification than non-Korean players, while non-Korean wheelchair tennis players reported higher motivation for enjoyment than Korean players.

Table 3. Comparison of competition anxiety between Korean and non-Korean wheelchair tennis players

Variable	M	SD	P	Cohen's <i>d</i>
Cognitive anxiety				
Korean	18.11	4.47	0.004 ^{a)}	0.8 ^{b)}
Non-Korean	21.73	5.03		
Physical anxiety				
Korean	17.55	4.93	0.334	0.3
Non-Korean	16.41	4.23		
Self-Confidence				
Korean	23.32	5.82	0.112	0.5 ^{b)}
Non-Korean	25.68	5.20		

M, mean; SD, standard deviation. ^{a)}Indicates a significant difference between two groups, $P < 0.05$. ^{b)}Indicates moderate or large effect size (Cohen's $d \geq 0.5$).

Table 4. Correlations between participation motivation and competition anxiety in Korean wheelchair tennis players

	Cognitive anxiety	Physical anxiety	Self-confidence
A	-0.165	-0.346 ^{a)}	0.219
B	0.067	-0.175	-0.032
C	-0.120	-0.246	0.046
D	-0.200	-0.407 ^{b)}	0.101
E	-0.281	-0.503 ^{b)}	0.186

A = learning; B = purification; C = friendship; D = health-fitness; E = enjoyment. ^{a)}Indicates a significant difference between two groups, $P < 0.05$. ^{b)}Indicates a significant difference between two groups, $P < 0.01$.

The comparisons between Korean and non-Korean wheelchair tennis players on competition anxiety are shown in Table 3. Results indicated significant differences in cognitive anxiety ($P = 0.004$, Cohen's $d = 0.8$). Non-Korean players reported higher cognitive anxiety than did Korean players. However, non-Korean players indicated higher confidence than did Korean players. Moreover, it is worth reporting that there were no significant group differences in reports of self-confidence; the effect size, however, it was 0.5, which indicated that the group difference had a moderate impact on cognitive anxiety ($P = 0.112$, Cohen's $d = 0.5$).

The results from the correlation analyses for the Korean players are shown in Table 4 shows results of correlations between participation motivation and competition anxiety in Korean wheelchair tennis players. It indicates that Korean tennis players' physical anxiety was significantly and negatively correlated with learning motivation, health-fitness motivation, and enjoyment motivation. On the other hand, cognitive anxiety and self-confidence were not significantly correlated with the motivations.

In Table 5, the results from the correlation analyses for the non-Korean players are displayed. Unlike the Korean players, the non-Korean players' physical anxiety and cognitive anxiety were not

Table 5. Correlations between participation motivation and competition anxiety in Non-Korean wheelchair tennis players

	Cognitive anxiety	Physical anxiety	Self-confidence
A	0.225	0.114	0.545 ^{b)}
B	0.383	0.086	0.461 ^{a)}
C	0.285	0.118	0.313
D	0.286	0.125	0.422
E	-0.090	-0.253	0.457 ^{a)}

A = learning; B = purification; C = friendship; D = health-fitness; E = enjoyment. ^{a)}Indicates a significant difference between two groups, $P < 0.05$. ^{b)}Indicates a significant difference between two groups, $P < 0.01$.

significantly related to any of the motivations. However, self-confidence was significantly correlated with learning motivation and enjoyment motivation.

DISCUSSION

The purpose of this study was to examine the similarities and differences in participation motivation and competition anxiety between Korean and non-Korean wheelchair tennis players. In addition, we sought to identify the relations between participation motivation and competition anxiety in each group. Results indicated that Korean athletes showed higher purification motivation but lower enjoyment motivation compared to non-Korean players. In addition, non-Korean players had higher self-confidence and cognitive anxiety than Korean players, but Korean players showed higher physical anxiety than non-Korean players. In addition, we found that non-Korean wheelchair tennis players' self-confidence was positively related to various participation motivation components, while Korean players' physical anxiety was negatively associated with the participation motivation subscales.

After comparing participation motivation between Korean and non-Korean wheelchair tennis players, we found that Korean players reported higher purification motivation and lower enjoyment motivation than non-Korean players. These differences may indicate different cultural and environmental contexts for the two groups, and differences between the two groups in their perspectives of sports participation for athletes with disabilities. While improving, people with disabilities in Korea experience more barriers to full inclusion in society (Kim and Nam, 2005). Therefore, it seems that Korean players have fewer opportunities to purify various needs than non-Korean players do; thus, Korean players participate in wheelchair tennis and as a result have high purification motivation via participation in wheelchair tennis.

In addition, Korean players had lower enjoyment motivation

than non-Korean players, which may be related to the training environment and financial support received. We found that about 70% of the Korean players receive less than \$3,000 per month, whereas about 50% of the non-Korean players receive less than \$3,000 per month. Thus, Korean players tend to participate in wheelchair tennis because of extrinsic motivation (e.g., money, reward) rather than intrinsic motivation (e.g., enjoyment, satisfaction).

Previous research comparing anxiety between elite and non-elite athletes has reported that elite athletes show higher self-confidence and lower physical anxiety compared to non-elite athletes. Moreover, previous studies have indicated that cognitive anxiety tends to be higher than physical anxiety in elite athletes (Covassin and Pero, 2004). The results presented herein indicate that non-Korean players reported higher self-confidence; moreover, cognitive anxiety was higher than physical anxiety among the non-Korean players. It may be that non-Korean players participated in the main draw, which requires the highest skill level, whereas some Korean players participated in the B or C draw, which requires an intermediate skill level. Thus, the results of our study may partially replicate those of previous research.

In addition, it may be that Korean players had higher physical anxiety because most Korean players were diagnosed after they graduated from a high school. Specifically, 90% of the Korean players had been diagnosed with a disability post-high school, while 35% of the non-Korean players had been diagnosed before their high school graduation. In other words, Korean players began wheelchair tennis later than non-Korean players did. The later diagnosis may mean that Korean players have fewer experiences using wheelchairs and less experience with, wheelchair tennis and competitive experiences. This may result in the experience of physical anxiety. Indeed, previous research supports this explanation. Avillon (1986) examined self-esteem in people who used a wheelchair for more than six years and those who used wheelchairs for less than six years; it was reported that people who used wheelchairs for more than six years had higher self-esteem compared to their counterparts. Veteran wheelchair athletes tend to have a positive self-concept and accept their disability when compared to novice wheelchair athletes. It is interesting to note that anxiety caused by a lack of experience using a wheelchair reaches its peak within the first year after diagnosis or injury. Therefore, it may be most effective to provide counseling programs to persons using a wheelchair when they begin to participate in wheelchair tennis in order to reduce this type of anxiety.

Moreover, based on the results of the correlation analyses, we

consistently found that Korean players used participation motivation in order to reduce or control physical anxiety when they play. On the other hand, non-Korean players tend to use participation motivation to increase self-confidence. These results support in part previous research indicating that increased motivation helps improve physical performance via positive changes in psychological factors (Duba and Treasure, 2011; Lee and Lee, 2009).

In sports psychology, it has been underscored that providing individualized psychological skill training is effective when based on the specific type of anxiety each player has (Marchant, 2010; Weinberg, 2010). Unlike non-Korean players, this study indicated that Korean players showed more physical anxiety rather than cognitive anxiety. Therefore, it may be important to provide programs that help reduce physical anxiety, such as biofeedback, breathing control techniques, and progressive relaxation techniques for Korean wheelchair tennis players (Weinberg, 2010). On the other hand, since non-Korean players showed more cognitive anxiety than physical anxiety, it seems that it would be prudent to implement techniques to reduce cognitive anxiety, including relaxation responses and autogenic training, with non-Korean players (Weinberg and Gould, 2007).

In sum, the findings of this study emphasize the need for individualized counseling programs and trainings by examining differences in sports participation motivation and competition anxiety between Korean and non-Korean wheelchair tennis players. However, there are a few limitations that should be addressed. First, we utilized data from wheelchair tennis players who participated in the 2013 Korean open tennis tournament, which resulted in a small number of non-Korean players being included in the sample. Thus, the small sample size limits the generalizability of our results. In addition, players who had a variety of nationalities were categorized as non-Korean players only. In future studies, international players need to be examined and compared to Korean players in order to develop individualized counseling programs and mental skill training. Finally, while this study provided results on wheelchair tennis players, it is necessary to investigate these processes in other disability sports in the Paralympics and that more players who have a variety of nationalities should be included to collect a large amount of cross-cultural information.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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